FOREST PRACTICES

The Silvicultural Surveyor Accreditation Process

BRITISH COLUMBIA

Ministry of Forests
Forest Practices Branch

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Background

In the 1980s a silvicultural surveyor certification and training process was developed for British Columbia with the goal of ensuring quality silvicultural surveys. However, surveyors and survey contractors were dissatisfied with the process of certification and with the structure of training (an intense five-day course with exam). In 1995, the certification process changed to an accreditation process.

In an effort to meet the changing demands on surveyors and to deal with the recognized shortcomings of the old certification and training process, a fresh approach was sought.

The silvicultural surveyor accreditation process

Through a consultative process with Forest Service staff, industrial foresters and survey contractors throughout the province, the Ministry of Forests has developed the silvicultural survey accreditation process. Rather than provide a mix of training and evaluation as in the old certification course, this accreditation process separates these two functions.

The silvicultural surveyor accreditation process:

- defines the role of a silvicultural surveyor
- eliminates prerequisites for the accreditation exam in favour of a self-screening process
- clearly defines performance expectations of silvicultural surveyors
- separates the accreditation exam from training so that individuals can design their training to suit their specific needs.

The role of a silvicultural surveyor

Silvicultural surveyors are experienced field practitioners. They make use of silviculture prescriptions and other information to carry out the following tasks:

- conduct or confirm the stratification of a survey unit
- ensure the accuracy and thoroughness of data collection and mapping
- confirm and identify additional critical site factors that may influence the attainment of management objectives set out in plans
- make preliminary recommendations for future treatment.

Although some silvicultural surveyors will be capable of making detailed final prescriptions, this is not their intended role. It is the responsibility of the forest manager in charge to ensure that detailed prescriptions are done by someone with the appropriate level of expertise, and are signed and sealed by a registered professional forester (RPF).

The silvicultural surveyor accreditation process will ensure that successful candidates have achieved a high standard of competency. It will also provide a pathway for entry into the workforce as a survey technician.

Career planning

Fitting silvicultural surveyor training into a forestry career plan

It is important to consider how silvicultural surveyor accreditation fits with an individual's forestry career plan. The following representation shows some possible career paths.

Possible technical forestry career paths

grade 12 comprehension level
work experience and on-the-job training
university or college education
junior technician/ data collector
work experience and on-the-job training
MoF training modules
Silvicultural Survey Accreditation
Accredited Silvicultural Surveyor (senior technician level)
Further advancement via Silviculture Institute of British Columbia programs for senior technicians or the Association of British Columbia Professional Foresters (ABCPF) Pupil Programs or other specialized training.

Prerequisites for the accreditation exam

The Silvicultural Surveyor Accreditation Process illustrates what is expected in order to pass the exam (see the attached list of performance expectations for the current year). Using this information, surveyors must decide if they have progressed sufficiently in their training to register for the exam.

To pass the examination for silvicultural surveyor accreditation, a person will need to meet a range of performance expectations under specific conditions. The criteria for success in each performance expectation have been defined.

Examples of performance expectations include:

- The ability to describe the conceptual basis for stratification. This could be accomplished during a written indoor examination that the examiner would use to judge the participant's understanding of the concept.
- The ability to recognize signs and symptoms of damage to young stands and identify the source as a major pest species group (e.g., rusts, root disease) or as another causal factor such as frost and snow. This could be accomplished in a field or written classroom exercise using slides, lab specimens or field examples. The participant would be expected to answer 80 percent of the examiner's checklist.

It will be up to the individual candidate to assess their own knowledge and skill level prior to registering for the accreditation exam. It is expected that most experienced surveyors will be able to meet these performance expectations.

Performance expectations

What does it take to be a silvicultural surveyor?

How does one acquire the necessary training?

To ensure that individuals have sufficient opportunities to acquire the needed skills and knowledge required for accreditation, the Ministry of Forests is currently working to provide training modules that individuals will be able to access from the Ministry of Forests web site. Depending on interest, these training modules will also be available through educational resources such as colleges, universities, SIBC[1], FCSN[2] and private consultants on a course basis. These modules will be designed to help participants meet the performance expectations for a silvicultural surveyor.

1 Silviculture Institute of British Columbia
2 Forestry Continuing Studies Network

The knowledge and skills required to meet the performance expectations do not have to be acquired through Ministry of Forests training courses. These requirements may come from a combination of the following sources:

- formal education (college, university, SIBC)
- informal on-the-job training
- on-the-job experience (some will be necessary)
- short courses (offered through various educational facilities).

Accreditation training modules

The Ministry of Forests training modules for silvicultural surveyors will consist of the following: soils; biogeoclimatic ecosystem classification; basic silvicultural surveys; forest health for silvicultural surveyors; vegetation management; multi-storey silviculture surveys; how to determine site index; and stand treatment recommendations.

Accreditation exams

Accreditation exams will be offered at the beginning and the end of the field season, in the spring and fall of each year, depending on interest.

The accreditation exams will include a one-day written examination, focusing on field-based case studies. Appropriate reference materials will be used and slides and/or video footage may be used to clarify case study issues. The second day of the exam will include a complete silvicultural survey conducted in the field. The exams will be marked based on the performance expectations.

Candidates will be expected to meet all performance expectation requirements.

The examination process will test the performance of surveyors. If major weaknesses in a surveyor's skill are identified, the examiner will suggest training to address these weaknesses. A major weakness, for example, is where a site has been poorly stratified with failure to identify a small area with moist compaction-prone soils within a larger mesic area with loamy soils. This error could affect future management and site productivity. When a major weakness is found, the candidate surveyor will be required to rewrite the exam, following further training.

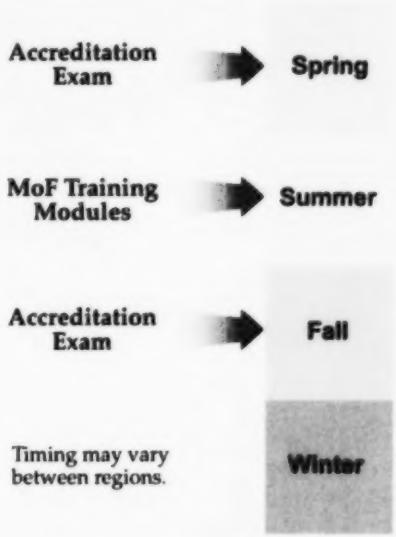
Each time a candidate takes the exam, an exam fee will be charged to cover all examination costs.

Dates and locations of the exams will be advertised through the Ministry of Forests web site as well as the FCSN and other forestry-related associations.

Accreditation is not a guarantee

The accreditation process will not guarantee the quality of a silvicultural surveyor's work. It is the employer's responsibility to ensure that a silvicultural surveyor has sufficient local knowledge and successful past experiences to undertake a project.

Timing of training and exams in the silvicultural surveyor accreditation process



Will there be any prerequisites for a candidate to register for the accreditation exam:

No...It is your choice. You will have to review all of the performance standards and determine if you can meet the requirements.

If I take the exam often enough won't I eventually get a feel for the questions and be able to pass?

Perhaps, however, it is unlikely that you will register unless you are truly prepared since the exam fee will be substantial.

If I am currently a "certified surveyor" do I need to go through this accreditation process?

No...Those whose certificates have not expired on or before December 31, 1994 will not be required to take this exam.

If I have been accredited, will I have to go through a re-accreditation process in a few years?

No...Emphasis will be placed on individuals remaining active in surveys.

Will junior data collectors require any sort of accreditation or prerequisites?

It is likely that survey contracts will state that all data collectors must demonstrate a working knowledge of the biogeoclimatic classification and basic surveys training modules.

When will a survey contract specify the involvement of an accredited silvicultural surveyor?...Will you need an accredited surveyor for a cone or seedbed survey?

Silviculture contracts will specify the involvement of an accredited surveyor whenever critical site factors must be checked or assessed. If the survey is only intended for raw data collection, an accredited surveyor may not be necessary.

Will the accredited surveyor have to sign each survey and take on responsibility for the survey and the recommendations?

No...Accreditation ensures performance expectations are met and does not imply professional standards and ethics. An RPF will sign and seal the prescription and MLSIS Form C associated with the survey and become ultimately responsible for the survey and the prescription.

Will an accredited surveyor who moves to a new forest region have to be accredited in that forest region?

No...Once accredited, the accreditation will apply throughout the province even though the exam content will address regional and local issues. However, most survey contracts will require a working knowledge of local management issues.

Why was the name of the process changed from certification to accreditation?

Accreditation implies attainment of a training standard. Certification implies a guarantee. It was felt that accreditation was a more accurate term since the process ensures competency of surveyors but does not guarantee their work.

The Silvicultural Surveyor Accreditation Program

1999 Performance Expectations

PO#	Performance objectives	Conditions	Criteria for success
1.	Understand current legal requirements as they relate to silviculture surveys and how to stay current.	Written and field examination.	Written: 75% accuracy. Field: acceptable in the judgement of the examiner.
2.	Describe the role of the silviculture survey in forest management.	Written examination.	To match 75% of the answer key.
3.	Understand the limitations and applicability of silviculture survey sampling methods.	Written examination.	To match 75% of the answer key.
4.	List the reasons (criteria) for stratification, and describe why good stratification is important for a silviculture survey.	Written and field examination.	Written: To match 75% of the answer key. Field: Acceptable in the judgement of the examiner.
5.	Choose the survey, timing of the survey, the type of data to collect and the sampling method to effectively address on-site critical factors.	Written and field examination.	Written and Field: To effectively facilitate the achievement of the stand management objectives and standards in the judgement of the examiner.
6.	Understand the applicability of survey methodologies for stands containing unusual stand structures.	Written examination.	Demonstrate an acceptable level of understanding in the judgement of the examiner.
7.	Apply multi-storey survey concepts.	Written examination.	To match 80% of the answer key.
8.	Photo-stratify a sample unit identifying all potential strata which should be ground checked.	Field examination.	The strata boundaries must reasonably agree with a previously stratified photo in the judgement of the examiner.
9.	Ground-check photo-stratification based on both environmental and interpretative features.	Field examination.	To match examiner's previously completed survey, or must not have the potential to negatively impact future forest management and site productivity.
10.	Understand the purpose of the walkthrough.	Written examination.	To match 75% of the answer key.
11.	Establish the parameters of the silviculture survey and record them on MOF field form FS 657.	Field examination.	Appropriately complete 90% of the key elements of the form in the judgement of the examiner.

PO#	Performance objectives	Conditions	Criteria for success
12.	Design plot layout with an appropriate plot distribution on a field map.	Field examination.	Layout and distribution must be to provincial standard. Completed on stratified map only.
13.	Choose an appropriate method to be used to determine site index for the stand and correctly identify site index.	Written and field examination.	Written: Match 75% of the answer key. Field: Using the appropriate method, correctly identify Site Index.
14.	Identify the texture of a mineral soil sample and explain its implications for management.	Field examination and case study.	Field: To an accuracy of three times out of four with distinct soil types. Participants will be given a latitude of 20% either side of the determined % sand, silt and clay content. Case Study: Major implications for management must be properly explained in the judgement of the examiner.
15.	Identify the % coarse fragments in a sample soil horizon and explain its implications for management.	Field examination.	Must consistently fall within plus or minus 15% of the determined CF content. Major implications for management must be properly explained in the judgement of the examiner.
16.	Identify the major humus form (mor, moder or mull) of a soil sample and explain its implications for management.	Written and field examination.	To match 75% of the answer key or actual classification.
17.	Identify critical factors and explain how they affect the establishment, growth and development of the future stand and the achievement of stand objectives. This will include site limiting factors and management limiting factors such as: • frost • soil conservation hazards and sensitivities • soil nutrients • soil moisture • soil temperature • forest health agents • non-timber management issue	Case study and field examination.	Within a reasonable range to be determined by the examiner on a site-by-site basis.
18.	Confirm and verify the appropriate subzone and variant. Provide rationale for decision.	Field examination.	To an accuracy of 100%.

PO#	Performance objectives	Conditions	Criteria for success
19.	Confirm and verify the appropriate site series or site series complex. Provide rationale for decision.	Field examination.	The site series must be classified within one site series of the actual.
20.	Stratify and map a forest unit into various site series or site series complexes based on ecological characteristics.	Field examination.	The stratification must agree with the examiner's previously completed survey, or to the satisfaction of the examiner, must not have the potential to negatively impact future forest management and site productivity.
21.	Construct a basic field map that is suitable for the unit and the survey, properly identifying strata boundaries, strata labels, opening number (or C.P. and block), and scale.	Field examination.	Must contain all of the four key elements. Accuracy per the examiner's judgement of an acceptable basic field map.
22.	Survey to the standards set out in SPs (including older ones) and provide recommendations for amendments where appropriate.	Written, case study and field examination.	Within a reasonable range to be determined by the examiner on a site-by-site basis.
23.	Collect and record data on MOF field form FS 657 and 658.	Field examination.	Appropriately complete 90% of the key elements of the forms.
24.	Identify commercial seedlings and/or mature trees of the commercial species found in the region.	Field examination.	• ± 2 years for trees ≤ 20 years old. • ± 10 years for trees > 20 years old.
25.	Summarize data on MOF forms FS 659 and 1138A.	Written and field examination.	Appropriately complete 90% of the key elements of the forms.
26.	Use information from data analysis on FS 659 and 1138A to make appropriate administrative recommendations (i.e., establish more plots, label as NSR, FG, etc.).	Field examination.	Per the following standards: • calculations of averages (per ha) should be within 10% of examiners results. • species composition percentages for the inventory component should be within 20% of the examiner's results. • significant regional forest health damage agents (those that have management implications) must be identified, with the incidence of each agent and other pertinent data within a reasonable range for the site based on the judgement of the examiner.

PO#	Performance objectives	Conditions	Criteria for success
27.	Compile the information from a survey and consistently transfer this information to maps and forms. Construct silviculture and inventory labels.	Written and field examination.	Achieve 80% accuracy.
28.	Describe the uses and importance of silviculture and inventory labels to forest management decisions.	Written examination.	To match 75% of the answer key.
29.	Recognize and explain the Ministry of Forest map symbols.	Written examination.	To match 80% of the answer key.
30.	Identify forest health damage, along with the major regional pest species (biotic and abiotic).	Written and field examination.	Achieve 80% accuracy.
31.	Describe potential impacts of major regional forest health damage agents on the future stand.	Written and case study.	Successfully demonstrate an understanding of the potential impacts in the examiner's judgement.
32.	Identify the autecological characteristics and growth rates of non-crop vegetation that could pose a potential threat to crop-tree survival and/or performance.	Case study and field.	Field: Successfully demonstrate an understanding of the potential threats posed by non-crop species, in the examiner's judgement.
33.	Identify broad treatment options (e.g., mechanical site prep, prescribed burning) that can be used for control of non-crop vegetation and provide justification for the choice.	Case study and field.	Select an option, or set of alternative options with justification, which, in the judgement of the examiner, is/are reasonable and effective in achieving objectives.
34.	Recommend appropriate planting options, including seedling stock types for a variety of reforestation scenarios and provide justification for your choice.	Written, case study and field.	Select an option, or set of alternative options with justification, which, in the judgement of the examiner, is/are reasonable and effective in achieving objectives.
35.	Recommend treatment options to address other management issues (i.e., forest health, biodiversity), with appropriate and thorough justification.	Case study and field.	Select an option, or set of alternative options with justification, which, in the judgement of the examiner, is/are reasonable and effective in achieving objectives.

Recommended references

The following references are useful to silviculture surveyors in British Columbia:

Forest Practices Code of British Columbia Act

Silviculture Practices Regulation

Operational Planning Regulation

Ministry of Forests, Forest Cover Map Legend, available with every Forest Cover map purchased.

Forest Practices Code Guidebooks

Provincial Seedling Stock Type Selection and Ordering Guidelines. Ministry of Forests. Forestry Division Services.

A Field Guide for Site Identification and Interpretation. Ministry of Forests (copies available for each region).

Field Guide to Forest Damage in British Columbia. Ministry of Forests.

All publications are available through the Ministry of Finance and Corporate Relations, Queens Printer:

Greater Victoria	(250) 387-6409
Vancouver	(604) 660-0981
Outside Victoria	1-800-663-6105

More information

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